

DIFFERENTIAL

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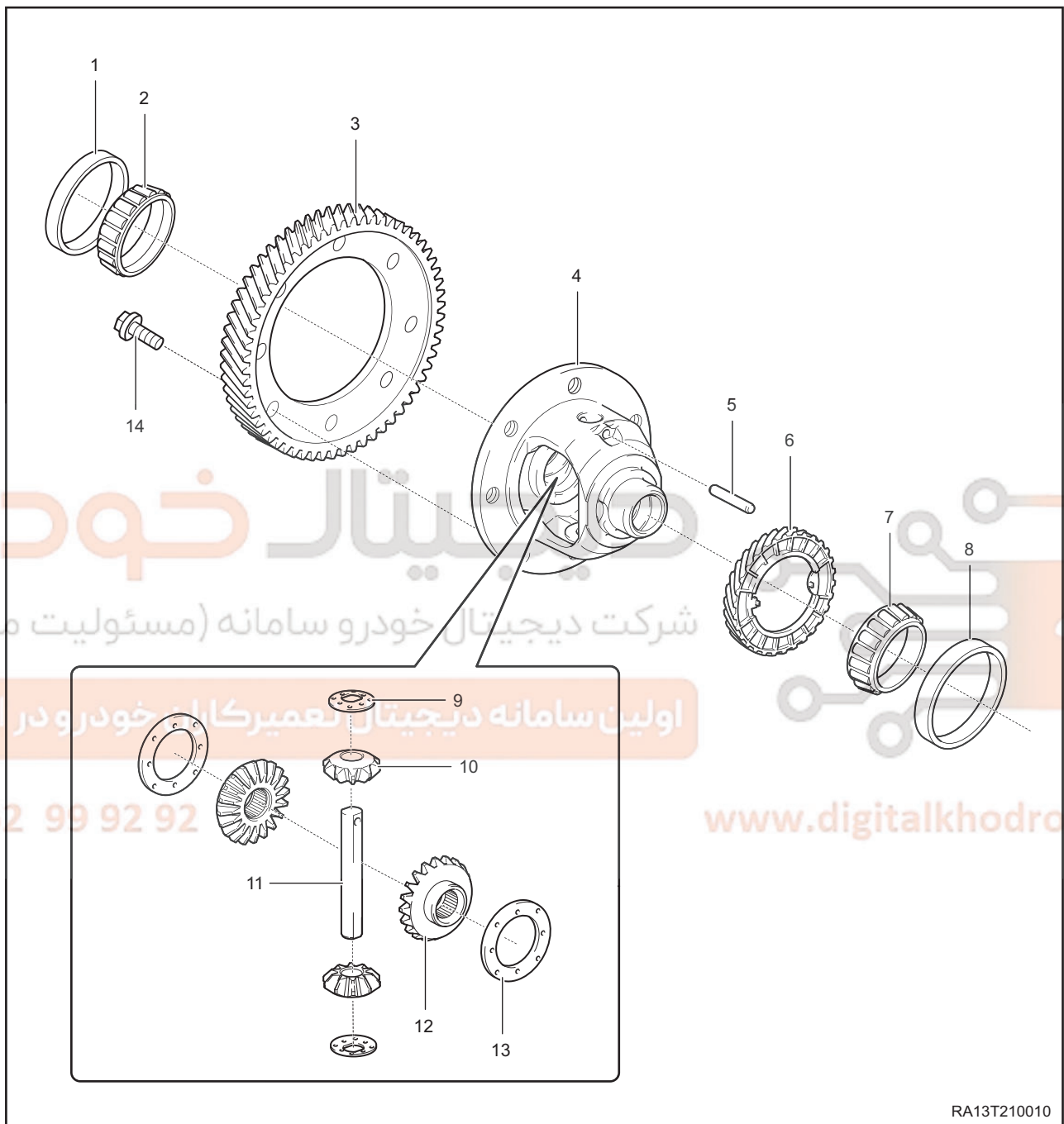


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GENERAL INFORMATION

Description



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21 - DIFFERENTIAL

1 - Differential Tapered Roller Bearing Outer Race	2 - Differential Tapered Roller Bearing
3 - Final Drive Driven Gear	4 - Differential Case
5 - Dowel Pin	6 - Odometer Drive Gear
7 - Differential Tapered Roller Bearing	8 - Differential Tapered Roller Bearing Outer Race
9 - Planetary Gear Washer	10 - Planetary Gear
11 - Planetary Gear Shaft	12 - Drive Shaft Gear
13 - Drive Shaft Gear Washer	14 - Bolt

Differential case contains 2 drive shaft gears, planetary gear shaft and 2 planetary gears. Final drive driven gear is linked up with the differential case by bolts. Planetary gear shaft, which is fixed on differential case, drives planetary gears to rotate when differential operates, thus driving the drive shaft gears to turn. Drive shaft gears are connected with drive shaft to transmit effort to wheels.

Operation

- When driving on a bumpy road or turning, the travel distance of outside wheels is longer than that of inside wheels, so the speed of outside wheels is faster, which breaks the balance of vehicle drive train.
- The planetary gear mechanism in differential can transmit the speed difference between outside and inside wheels via drive shaft when rotating. It forces the planetary gears to rotate, thus allowing inside and outside wheels to spin at two different speeds in order to balance the speed difference and keep vehicle moving smoothly.
- Final drive is a component to reduce the rotation speed and increase the torque of drive train.

Specifications

Torque Specification

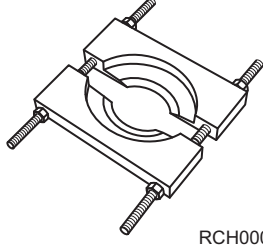
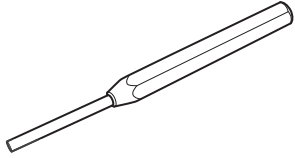
Description	Torque (N·m)
Final Drive Driven Gear Bolt	137 ± 3

Clearance Specification

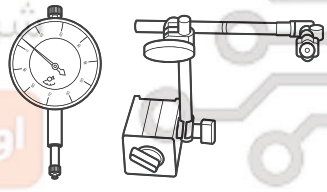
Description	Acceptable Range (mm)
Clearance Between Differential Case and Planetary Gear	0.025 - 0.150

Tools

Special Tools

<p>Bearing Remover</p>	 <p>RCH0000011</p>
<p>Punch</p>	 <p>RCH0000015</p>

General Tools

<p>Dial Indicator and Magnetic Holder</p>	 <p>RCH0000023</p>
<p>Hydraulic Press</p>	 <p>RCH0000012</p>

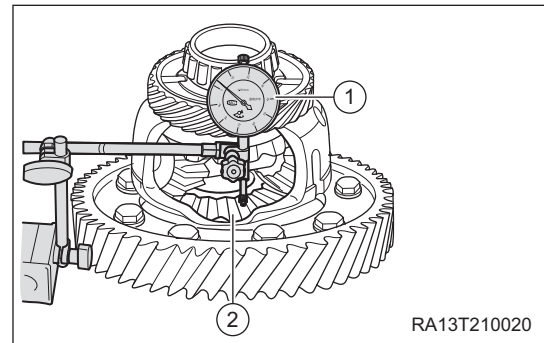
DIAGNOSIS & TESTING

Differential Gear Clearance Inspection

Inspection Method

1. Remove the differential.
2. Check clearance of differential drive shaft gear (2) with a dial indicator (1).

Gear clearance: 0.025 - 0.150 mm



CAUTION

- If clearance is not as specified, replace and adjust the drive shaft gear washer.
- After replacing drive shaft gear washer, measure and adjust the clearance again to ensure that it is as specified.

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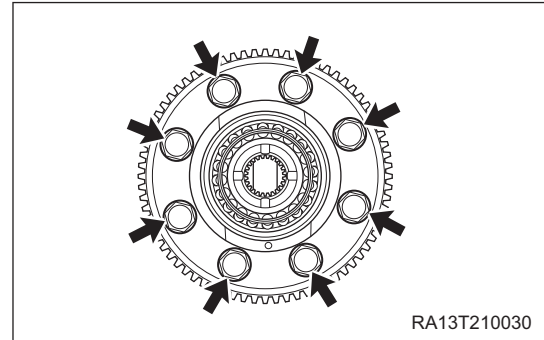
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ON-VEHICLE SERVICE

Final Drive Driven Gear

Removal

1. Remove the differential (See page 17-26).
2. Hold differential in a vise.
3. Remove the final drive driven gear bolts.
(Tightening torque: 137 ± 3 N·m)



Installation

Installation is in the reverse order of removal.

CAUTION

- Apply seal gum to the bolts during installation.

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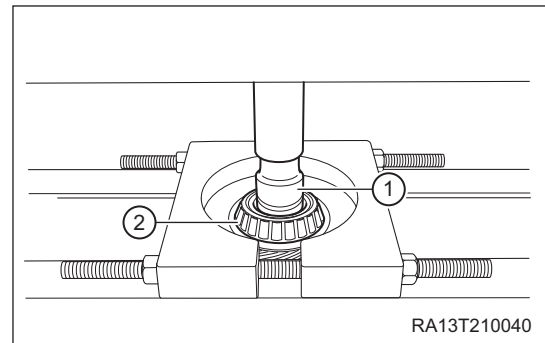
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Differential Bearing

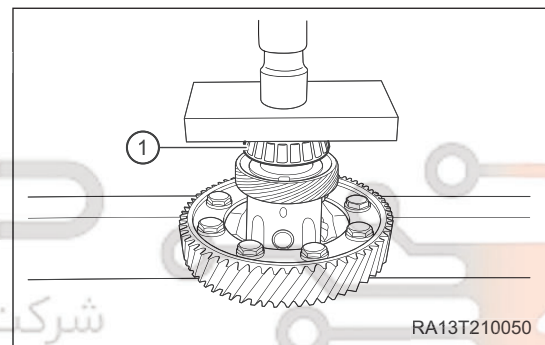
Removal

1. Remove the differential (See page 17-26).
2. Remove the differential bearing.
 - a. Using a hydraulic press (1), separate bearing (2) from differential.



Installation

1. Install the differential bearing.
 - a. Using a hydraulic press, press bearing (1) into differential.



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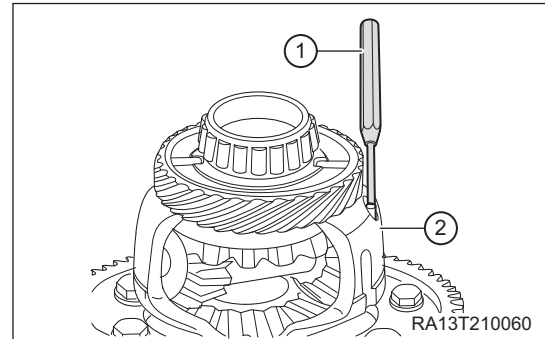
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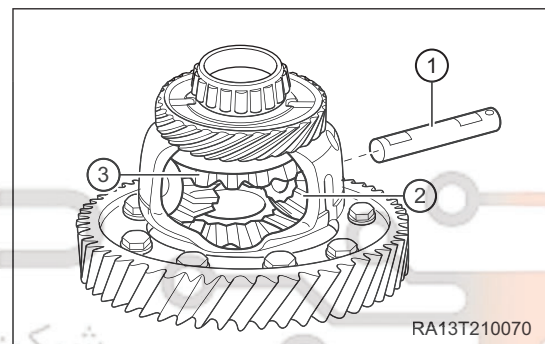
Differential Planetary Gear

Removal

1. Remove the differential (See page 17-26).
2. Remove the differential planetary gear.
 - a. Tap out dowel pin (2) with a punch (1).



- b. Remove planetary gear shaft (1), planetary gear (2) and drive shaft gear (3).



Installation

Installation is in the reverse order of removal.

CAUTION

- Adjust clearance until gear clearances of both sides are the same during installation.
- Drive shaft gears and planetary gears should operate normally after tapping in dowel pin.

Differential Components Inspection

1. Clean all the components.
2. Check following components for wear:
 - Final drive driven gear
 - Planetary gear washer
 - Drive shaft gear
 - Planetary gear
 - Planetary gear shaft
 - Drive shaft gear washer

- MEMO -

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